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Background

Vista space (VS) is a psychological space whose scale is “larger than the body but can be visually apprehended from a single place without appreciable locomotion” [Montello, 1993]. Moreover, VS can combine to represent larger spaces [Meilinger, 2008]. VS are considered as unit elements of mental representations of space and have only been assessed in sighted subjects (not in visually impaired people).

Aims

In this study, we compared VS of sighted and blind people.

Method

We designed a cardboard model of a famous square in Toulouse and the surrounding buildings. 30 subjects (21 blindfolded sighted, 9 blind) who had previous knowledge of the square were asked to spontaneously imagine it (dominant viewpoint). Then they positioned and oriented a figurine in the model, at the location of this dominant viewpoint. We used vector based hierarchical clustering to extract meaningful groups of subjects.

Results

52.4% of the sighted subjects had their viewpoint oriented towards the city hall side, i.e. their mental representation was based on the square geometry. The others had representations attached to the way they usually enter the place, i.e. autobiographical strategies. Two main clusters were identified, one containing 57.1% of the sighted subjects and no blind subjects, another containing 55.6% of the blind subjects and only 4.8% of sighted subjects.

Conclusion

The clustering analysis suggests that VS strongly differ between sighted and blind people. VS of sighted subjects rely on the geometry of the place and strong visual landmarks, whereas blind subjects' VS are mainly based on autobiographical memories linked to navigation.