Sex Differences in Reorientation Strategies

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Introduction

All organisms need to frequently reorient themselves in order to find food, water and shelter[1].
To aid in reorientation, featural cues (e.g., patterns) and geometric cues (e.g., wall length) can be used[1].

Research Questions

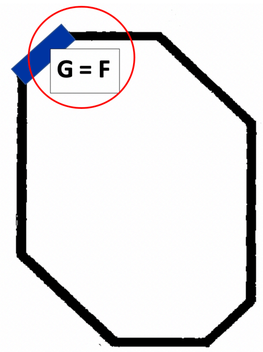
1. Do people rely on featural cues more than geometric cues during reorientation?
2. Do Women and Men rely on features and geometry differently?

Methods

Participants: University of Saskatchewan Undergraduate Psychology students (n = 32, Women = 16).
Octagonal arena

- Procedure: 11 trials (8 training, 3 testing).

Training Trials

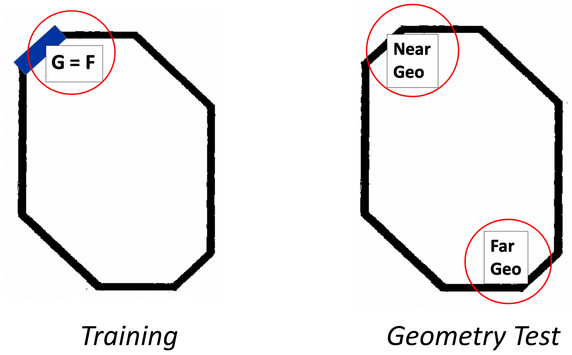


- Participants were trained to find a reward in the arena, where the feature is a blue wall.
- Geometric cue = Featural cue
- Incidental encoding of geometry.

Testing trials

- Three Testing trials.
- Non-reinforced.
- Counterbalanced across participants

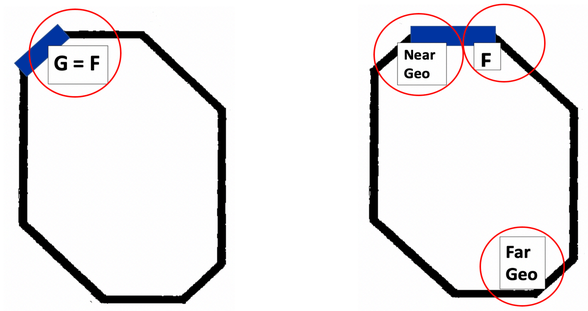
Geometry Test



Training *Geometry Test*

- Feature was removed.
- We predict choices to “Far Geo” and “Near Geo”, if geometry was encoded.

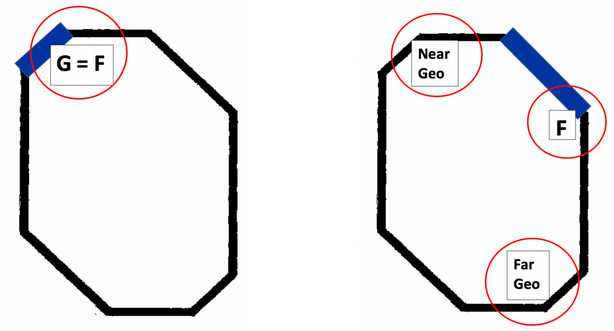
Blue Wall Moved One Position Test



Training *One Position Test*

- Feature was moved clockwise.
- We predict choices to ‘F”, if relying on feature. Or choices to ‘Far Geo and Near Geo’, if geometry was relied on.

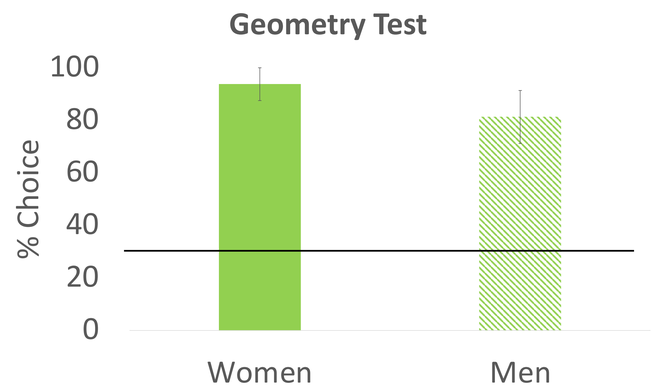
Blue Wall Moved Two Position Test



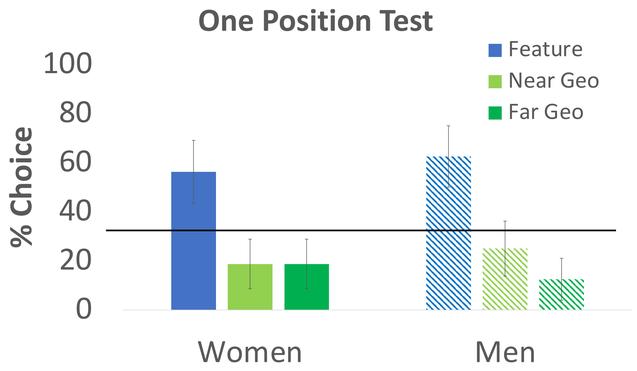
Training *Two Position Test*

- Feature was further moved clockwise
- We predict choices to ‘F’, if relying on feature. Or choices to ‘Far Geo and Near Geo’, if geometry was relied on.

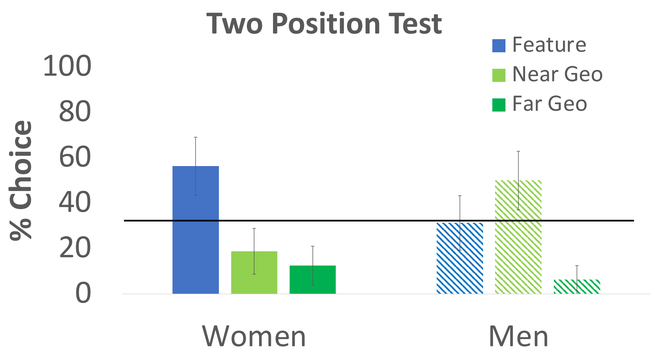
Results



- Chance to corner G = 25%.
- Both women and men chose Geo corners greater than chance.
- Men: $\chi 2$ (1)= 6.25, p = 0.012.
- Women: $\chi 2$ (1) = 12.3, $p < 0.001$.



- Both women and Men relied on feature more than geometry.
- Men: t(15)= 2.33, p = 0.034.
- Women: t(15) = 2.02, p = 0.061



- Both women and men relied on feature.
- Men: t(15) = 0.180, p = 0.860.
- Women: t(15) = 2.28, p = 0.038.

Discussion

- Both women and men incidentally encoded geometry successfully when the feature was removed.
- When feature and geometry were placed in conflict, and the feature was moved one position, both women and men followed the feature.
- When feature and geometry were placed in even greater conflict, and the feature was moved two positions, women continued to follow the feature, while men chose the nearest geometrical corner to the feature.

References
Kelly, D.M., Spetch, M.L., Heth, C.D. (1998). J Comp Psych 112(3), 259-269[1].